



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/729,119	12/04/2003	Ismail Emesh	004.0122	3177
29906	7590	08/25/2006	EXAMINER	
INGRASSIA FISHER & LORENZ, P.C. 7150 E. CAMELBACK, STE. 325 SCOTTSDALE, AZ 85251			SHAKERI, HADI	
			ART UNIT	PAPER NUMBER
			3723	

DATE MAILED: 08/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/729,119

Applicant(s)

EMESH ET AL.

Examiner

Hadi Shakeri

Art Unit

3723

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-25 is/are pending in the application.
- 4a) Of the above claim(s) 19-25 is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-18 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. ____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____. |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date ____. | 6) <input type="checkbox"/> Other: ____. |

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on June 26, 2006 has been entered.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

3. Claims 1, 3, 4, 7, 9, 10, 13, 15 and 18 are rejected under 35 U.S.C. 102(e) as being anticipated by Moeggenborg et al. (6,974,777).

Moeggenborg et al. discloses all of the limitations of the above claims, i.e., a CMP system using an abrasive free solution with an abrasive polishing pad having an aliphatic surfactant with a pH buffer at 6 or greater (meeting the language as recited at e.g., 6).

Regarding claims 3, 4, 9, 10, 15, 16 and 18, Moeggenborg et al. meets the limitations, i.e., polyethylene glycol; potassium oxalate, and leaving the removal rate of the oxide layer substantially unchanged (09:46-48).

Claim Rejections - 35 USC § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

5. Claims 2, 5, 6, 8, 11, 12, 14 and 17 are rejected under 35 U.S.C. 103(a) as obvious over Moeggenborg et al.

Regarding the above claims, Moeggenborg et al. meets the limitations, except for the particular amount of the specific compounds, modifications well within the knowledge of one of ordinary skill in the art depending on the workpiece and/or operational parameters.

6. Claims 1-18 are rejected under 35 U.S.C. 103(a) as obvious over Kubota et al. (6,270,393) in view of Moeggenborg et al. or over Kubota et al. in view of Moeggenborg et al. and Hattori et al. (2004,0234396).

Kubota et al. meets all of the limitations of claims 1, 7 and 13, i.e., a polishing fluid/method for CMP process comprising an aliphatic surfactant; a buffer adjuster (potassium hydroxide and sodium hydroxide), and a chelating agent (component c), except that it does not disclose using a fixed abrasive pad with an abrasive-free solution and keeping the pH between

Art Unit: 3723

5 and 14. With regards to using an abrasive free solution with a fixed abrasive pad, it is noted that in a CMP polishing system an abrasive slurry may be used with a non-abrasive polishing pad, or in the alternative an abrasive-free slurry may be used with a fixed abrasive pad, i.e., the abrasive particles in the system be suspended in the solution or in the pad, as evident by Moeggenborg et al. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to modify the chemical-mechanical polishing system of Kubota et al. by incorporating the abrasive in the polishing pad in lieu of the solution, i.e., an abrasive free solution as taught by Moeggenborg et al. as an alternative means depending on the workpiece/operational parameters.

Kubota et al. as modified is silent regarding the preferred range of the pH for the slurry, even though the solution appears to be alkaline which would anticipate the claims for having a pH higher than 7, however, it is noted that setting the pH of the solution, i.e., the acidity or alkalinity of the solution, at a particular value, e.g., 7 depends on the workpiece/operational parameters obvious to one of ordinary skill in the art.

It is also noted that Kubota et al. as modified meets all of the limitations of the above claims as described in the previous office action, listing different surfactants, e.g., polyethylene glycol, which is disclosed by the instant application to be a preferred amphoteric surfactant as the polyacrylic acid (paragraph 54). Polyethylene glycol as disclosed by Kubota et al., performs the identical function specified in the claim in substantially the same way, and produces substantially the same results as the polyacrylic acid with high molecular weight as disclosed in the specification and a person of ordinary skill in the art would have recognized the interchangeability of the element shown in the prior art for the corresponding element disclosed in the specification.

Art Unit: 3723

In the alternative, Hattori et al. teaches slurries having any one of cationic, anionic, and nonionic surfactant with preferred embodiment of potassium or ammonium salt of polyacrylic acid. It would have been obvious to one of ordinary skill in the art, at the time the invention was made, to further modify the cationic, anionic, and nonionic surfactant of Kubota et al. as modified by Moeggenborg et al. with the potassium or ammonium salt of polyacrylic acid as taught by Hattori et al. to enhance the operation.


Regarding claims 2-5, 6-12 and 14-18, Kubota et al. as modified above, meets the limitations, i.e., surfactant, e.g., polyethylene glycol in an amount of from 0.1% to 10 by weight which is considered to meet the limitation as recited, however, choosing a particular amount of the surfactant, e.g., 2 vol. % in enhancing the operation, would have be within the knowledge of one of ordinary skill in the art depending on the workpiece and/or operational parameters; chelating agent, e.g., EDTA in an amount of, e.g., 1% wt. (within the range specified 01 to 3%), regarding claim 18, Kubota et al. as modified above meets the language.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Hadi Shakeri whose telephone number is (571) 272-4495. The examiner can normally be reached on Monday-Friday.

The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Hadi Shakeri
Primary Examiner
Art Unit 3723

August 20, 2006